IN THE CLAIMS:

1 (currently amended). A method for segmenting an image acquired with a medical imaging system to identify the boundary of an organ, comprising:

A. acquiring image data of said organ with said medical imaging system;

B. reconstructing an image corresponding generally to said organ;

C. selecting a starting location on said reconstructed image within the confines of said boundary of said organ;

D. iteratively propagating an expansion boundary around said starting location outwardly a plurality of times until it is determined that said expansion boundary has traversed said boundary of said organ; ~~and~~

E. ~~outputting a representation of said boundary of said organ.~~ refining said reconstructed image, including:

i. activating pixels on said reconstructed image having an intensity value greater than an intensity of said expansion boundary during a previous iteration;

ii. removing pixels not connected to said starting location;

iii. mapping said reconstructed image onto an output image; and

iv. activating pixel clusters within said expansion boundary that are smaller than a predetermined threshold; and

F. outputting a representation of said boundary of said organ.

2 (original). The method as recited in claim 1, wherein step (C) further comprises selecting a point on said reconstructed image corresponding to said image data and having a relatively high intensity.

3 (original). The method as recited in claim 1, wherein step (D) further comprises acquiring statistical data corresponding to said expansion boundary after each iteration.

4 (original). The method as recited in claim 3, further comprising determining that said expansion boundary has traversed said boundary of said organ based on said statistical data, wherein said statistical data includes a standard deviation of intensity values of said image data corresponding to said expansion boundary.

5 (original). The method as recited in claim 3, further comprising determining that said expansion boundary has traversed said boundary of said organ based on statistical data including the size of said expansion boundary, and a standard deviation of intensity values corresponding to said expansion boundary.

6 (original). The method as recited in claim 1, wherein step (D) further comprises, subsequent to each iteration:

a. refining said reconstructed image to remove any fine lines and clusters of pixels not connected to said starting location;

b. producing said expansion boundary as an outer boundary of said reconstructed image; and

c. calculating statistics pertaining to said expansion boundary; and;

d. based on said statistics, determining when said expansion boundary has traversed said boundary of said organ.

7 (currently amended). The method as recited in claim 1, wherein step (E) further comprises activating all pixels having intensity values greater than the intensity of said expansion boundary during the previous iteration. ~~further comprising:~~

~~F. refining said reconstructed image prior to outputting said representation of said boundary of said organ.~~

8 (currently amended). The method as recited in claim ~~7~~ 1, wherein step (E) further comprises: removing fine lines and clusters of pixels not connected to said starting location.

~~a. turning on all pixels on said reconstructed image having an intensity value greater than an intensity of said expansion boundary during a previous iteration;~~

~~b. removing any fine lines and clusters of pixels not connected to said starting location;~~

~~c. mapping said reconstructed image onto an output image; and~~

~~d. turning on any pixel clusters within said expansion boundary that are smaller than a predetermined threshold.~~

9 (currently amended). The method as recited in claim 1, further comprising:

[[F]] G. determining that an error condition exists when at least one of the following conditions are met;

1. the size of said expansion boundary has exceeded a maximum threshold and said expansion boundary has not been determined to have traversed said boundary of said organ; and

2. a maximum number of iterations have been performed and said expansion boundary has not been determined to have traversed said boundary of said organ.

10 (original). The method as recited in claim 1, wherein said boundary of said organ is a left ventricular endocardium of a human heart.

11 (currently amended). A magnetic resonance imaging system for producing an image of an outer boundary of an organ, comprising:

means for acquiring NMR image data of said organ;

means for reconstructing an image corresponding generally to said organ;

means for selecting a starting location on said reconstructed image within the confines of said boundary of said organ;

means for iteratively propagating an expansion boundary around said starting location outwardly a plurality of times until it is determined that said expansion boundary has traversed said boundary of said organ; ~~and~~

means for refining said reconstructed image, including:

i. means for activating pixels on said reconstructed image having an intensity value greater than an intensity of said expansion boundary during a previous iteration;

ii. means for removing pixels not connected to said starting location;

iii. means for mapping said reconstructed image onto an output image; and

iv. means for activating pixel clusters within said expansion boundary that are smaller than a predetermined threshold; and

means for outputting a representation of said boundary of said organ.

12 (original). The magnetic resonance imaging system as recited in claim 11, wherein said means for selecting further comprises means for selecting a point on said reconstructed image corresponding to said image data and having a relatively high intensity.

13 (original). The magnetic resonance imaging system as recited in claim 11, further comprising means for acquiring statistical data corresponding to said expansion boundary after each iteration.

14 (original). The magnetic resonance imaging system as recited in claim 13, wherein said means for acquiring statistical data further comprises means for determining that said expansion boundary has traversed said boundary of said organ based on said statistical data, wherein said statistical data includes a standard deviation of intensity values of said image data corresponding to said expansion boundary.

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15 (original). The magnetic resonance imaging system as recited in claim 13, wherein said means for acquiring statistical data further comprises means for determining that said expansion boundary has traversed said boundary of said organ based on statistical data including the size of said expansion boundary, and a standard deviation of intensity values corresponding to said expansion boundary.

16 (original). The magnetic resonance imaging system as recited in claim 11, further comprising means for determining that an error condition exists when one of the following conditions are met;

1. the size of said expansion boundary has exceeded a maximum threshold and said expansion boundary has not been determined to have traversed said boundary of said organ; and

2. a maximum number of iterations have been performed and said expansion boundary has not been determined to have traversed said boundary of said organ.

17 (original). The magnetic resonance imaging system as recited in claim 11, wherein said outer boundary of said organ comprises a left ventricular endocardium of a human heart.

18 (new). The magnetic resonance imaging system as recited in claim 11, wherein said means for refining further comprises means for activating all pixels having intensity values greater than the intensity of said expansion boundary during the previous iteration.

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19 (new). The magnetic resonance imaging system as recited in claim 11, wherein said means for refining further comprises means for removing fine lines and clusters of pixels not connected to said starting location.